DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY MATERIEL COMMAND
5001 EISENHOWER AVENUE, ALEXANDRIA, VA 22333-0001

AMC REGULATION NO. 700-107
CHANGE 1

16 November 1992

Logistics

PREPARATION OF STANDING OPERATING PROCEDURES (SOP) FOR AMMUNITION OPERATIONS

AMC-R 700-107, 8 May 1992, is changed as follows:

1. Page 1, table of contents. In the title of appendix E, change the word "Nuclear" to "Nonnuclear."

2. Page 3, paragraph 3i, line 1. After the word "analyses,"add: "as outlined in appendix N."

3. Page 3, paragraph 3i. Change the third sentence to read: "A major function of the hazard analysis is intended to provide the decision makers an assessment of the identified hazards, proposed controls, and the rationale for acceptance or rejection of any residual risk. The analysis should be used as a management tool for making risk management decisions and allocating available resources for maximum benefit."

4. Page 3, paragraph 3i. Delete the fourth and fifth sentences.

5. Page 3, paragraph 3i(1). Change subparagraph (1) to read:

"(1) A hazard analysis for an ammunition or explosive operation will consist of a systematic, step-by-step, documented review of the operation. Hazard analyses are performed to identify hazardous conditions for the purpose of their elimination or control. An analysis will be conducted on the total system, i.e., a production, maintenance, or renovation line; the subsystems involved, i.e., facilities, utilities, and work stations, to include equipment, tools, procedures, and their interfaces. This evaluation should also consider risk from potential energy sources, (explosive, mechanical, electrical, environmental, etc.); the likelihood of an accidental release, and the effects of such a release. Each hazardous condition will be assigned a Risk Assessment Code (RAC), as defined in AR 385-10 (The Army Safety Program)."

6. Page 3, Paragraph 3i(2). Delete subparagraph (2) and replace with the following:

"(2) Hazards will be assessed in terms of exposure to risk. The hazard/exposure (risk) must be qualitatively evaluated in terms of probability and likely severity (see AR 385-10). All possible conditions and events must

be considered to determine whether they could cause or contribute to an accident or injury. Decisions regarding resolution of identified hazards shall be addressed by the Hazard Analysis Working Group (see appendix N for details). The RAC codes, as detailed in AR 385-10, will be developed and assigned to each hazard. Proposed hazard controls will be evaluated for effectiveness, to either eliminate the hazard or reduce the severity to an acceptable level of risk (normally RAC 4 or 5). The RAC codes developed for the hazard analysis will identify and categorize the risk, both before and after controls have been applied."

7. Page 4, paragraph 3i(3). Change the second sentence to read: "The U.S. Army Defense Ammunition Center and School (USADACS), and the U.S. Army Safety Center (USASC), offer courses in risk management, hazard analysis, and system safety. Those personnel instructing, performing or reviewing hazard analyses should plan to attend this type of training. Employees who have successfully completed the AMC Safety Engineer or DA Safety Internship Programs are exempt from the training provisions of this regulation. Under the purview of AMC-R 350-4, paragraph 4b, the installation or activity Certification Authority must evaluate training, if other than outlined above, to ensure that personnel are qualified to conduct hazard analyses operations. Until such time as training is completed, supervisors must ensure that only the most qualified personnel available perform, review or approve hazard analyses for ammunition operations."

8. Page 7, paragraph 5q(1)(e). Delete everything after the first sentence.

9. Page C-2, appendix C, paragraph 18. After the word "(PENTA)," add: "or "P."

10. Page C-3, appendix C, paragraph 19. After the words "treatedwith," add the words: "Copper-9-quinolinolate "(PA)." After the words "zinc naphthenate," add: "(PB)." After the words "copper naphthenate," add: "(PG)."

11. Page D-1, appendix D, paragraph c. Add "G--" before the word "Operation."

12. Page D-1, appendix D, paragraph e. Add "I--" before the words "Personnel Limits."

13. Page D-3, appendix D, paragraph G. Change the word "OPERATORS" to "OPERATIONS."

14. Appendix E. After page E-1, add pages E-2 and E-3 (figures E-1 and E-2). These figures were inadvertently omitted from the regulation and are referenced on page E-1.

15. Page I-2, appendix I, paragraph 3b. Delete "FSA."

16. Page L-1, appendix L, subparagraph d. Delete the last sentence of the paragraph.

17. Add appendix N. Add pages N-1 and N-2.

The proponent of this regulation is the United States Army Materiel Command. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the Commander, HQ AMC, ATTN: AMCAM-LP, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001.

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Appendix E — Continued

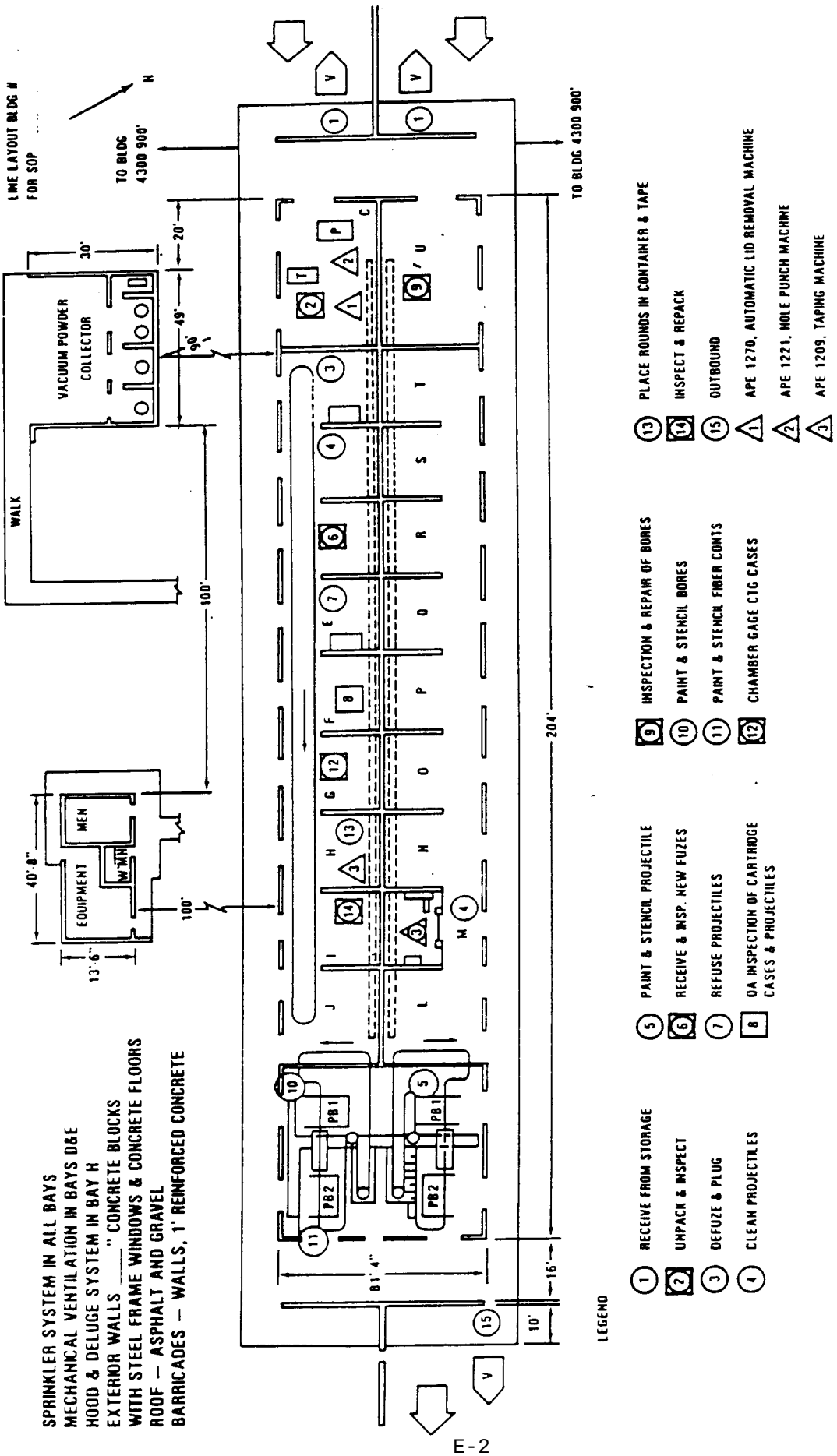

Figure E-1

STANDARDIZED SYMBOLS

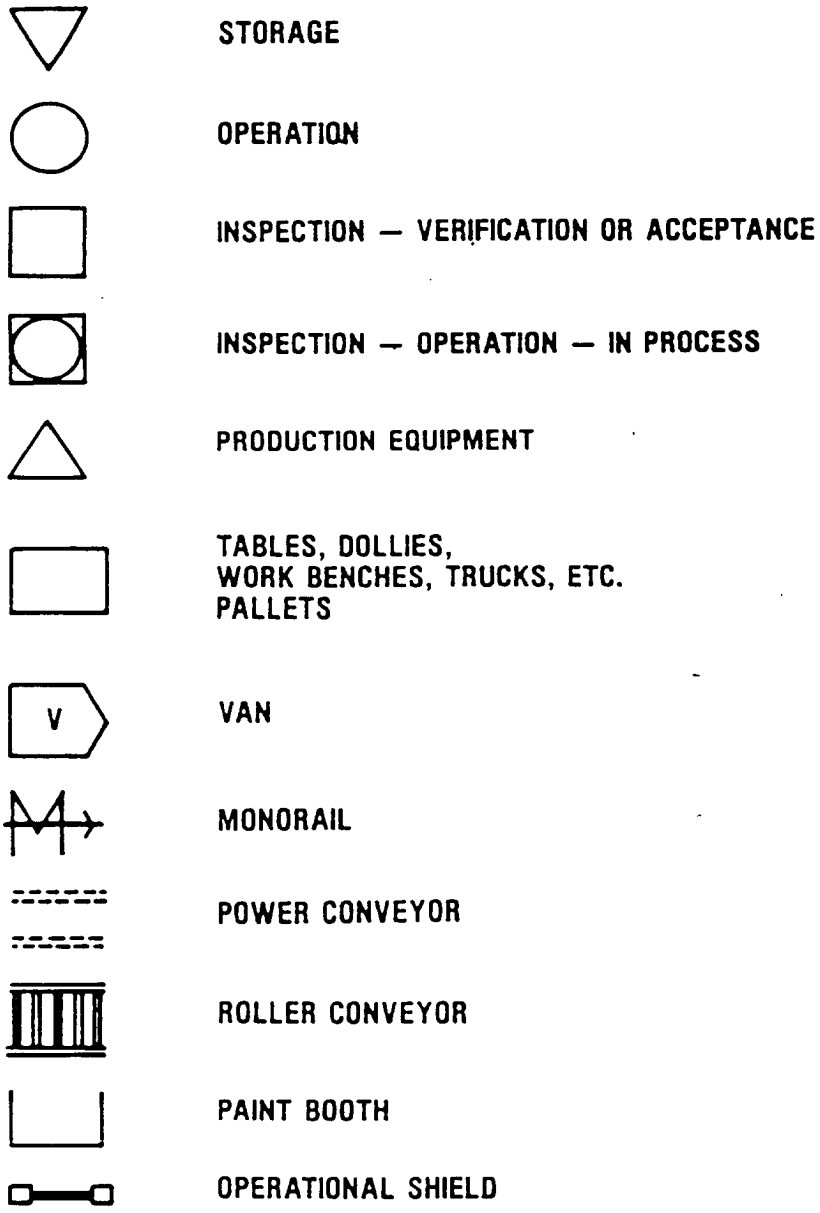

Figure E-2

APPENDIX N

REQUIREMENTS FOR PERFORMING HAZARD ANALYSIS

1. Hazard Analysis Requirements.

a. Hazard Analyses (HA) are required for all operations involving handling and/or processing of energetic/hazardous materials.

b. Each Standing Operating Procedure (SOP) must be based upon, and supported by a HA. The HA will become a permanent part of the record copy SOP upon completion of staffing.

c. All new SOPs require a HA prior to development and staffing.

2. Hazard Identification and Control. The HA will identify each step of the operation in sequence and will establish compensating measures for reducing each hazard to an acceptable risk. Risk Assessment Codes (RAC) will be assigned per AR 385-10, tables 3-1, 3-2, and 3-3. RAC 1 and 2 designations are unacceptable from an operational standpoint and will be reduced to the maximum extent possible, preferably 4 or 5, prior to starting operations. RAC 3 is permitted but should be discussed with, and accepted by the commander. RAC 1 or 2 situations must be reduced to at least RAC 3 as a minimum through realistic process modification or controls, or else the task abandoned.

3. Hazard Analysis Process.

a. The organization that develops an SOP must first prepare a preliminary hazard analysis. A fairly complete list of areas to be considered may be found in MIL-STD-882B. The most common format for this analysis is the columnar approach. This format consists of several columns, describing the hazard, its cause, the resulting effects, the category of the hazard (RAC), a description of the measures taken to control the hazard, and a final RAC for the hazard as controlled.

b. A Hazard Analysis Working Group (HAWG) will be formed at each installation to support and manage the final HA development process. Membership of the HAWG will consist of Safety (Chairperson), SOP Developer, Ammo Surveillance, Environmental, and others deemed necessary to provide adequate technical support.

c. The preliminary HA will be submitted to the HAWG for review. The HAWG will perform an evaluation and determine adequacy and suitability of the contents and make necessary changes to constitute the final HA. Depending upon the operational risks involved, the HAWG may require additional analysis efforts (data searches, testing prototyping, etc.).

d. Based upon the complexity of the operation, additional hazard analysis techniques may also be deemed appropriate by the HAWG. They will be based upon the operating and support hazard analysis techniques given in

MIL-STD-882B. The HAWG will assure that ancillary functions and conditions, i.e., equipment maintenance, environmental considerations, equipment failure modes, are considered prior to approval of the HA.

e. When the HAWG approves the HA, it may then be used for development of the SOP it supports.

f. The HA will be reviewed and updated, as necessary, prior to any changes to the SOP. The HA will also be reviewed in conjunction with any SOP review/recertification.

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AMC REGULATION
No. 700-107

8 May 1992

Logistics

PREPARATION OF STANDING OPERATING PROCEDURES (SOP) FOR AMMUNITION OPERATIONS

Supplementation of this regulation is prohibited unless prior approval obtained from Commander, U.S. Army Materiel Command, ATTN: AMCAM-LP.

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*This regulation supersedes AMC-R 700-107, 29 October 1986.

1. Purpose. This regulation prescribes policy, responsibilities, and procedures for preparing standing operating procedures (SOP) for ammunition operations. The purpose of an SOP is to provide clear, concise guidance to operating personnel and to aid in the training of operators.

2. Scope. This regulation applies to all U.S. Army Materiel Command (AMC) major subordinate commands (MSC), including subordinate installations and activities, that perform the ammunition operations described in subparagraph 3b.

3. Policy. a. SOPs will be prepared for all ammunition operations.

b. Operations covered by this regulation include: transportation, receipt, storage, issue, maintenance, preservation and packaging, demilitarization, disposal, target and accuracy (T&A) firing testing, stockpile reliability testing, inspection, and surveillance, involving conventional ammunition and explosives, large rockets, guided missiles, chemical agents and munitions, nuclear weapons, ancillary items, and ammunition containing radioactive materials or components. Also included are Research, Development, Test & Evaluation (RDT&E) SOPs developed for the above listed operations.

c. Administrative procedures are excluded from the scope of this regulation. Ammunition related operations involving inert or nonhazardous materials are also excluded; however, the preparation of SOPs for such operations is encouraged, particularly where quality characteristics must be maintained and for personnel safety.

d. Routine repetitive depot type operations such as transportation or demilitarization which support research and development operations will be prepared and reviewed per all provisions of this regulation.

e. SOPs for load-assemble-pack (LAP), manufacturing, and contractor-owned contractor-operated operations are required. It is recommended that they be prepared per guidelines of this regulation. However, for these operations, format and external review requirements of this regulation are not mandatory.

f. SOPs prepared prior to effective date of this regulation will not be rewritten solely to comply with provisions of this regulation. SOPs will be rewritten in prescribed format at time of the next review per paragraph 5h.

g. Effective Army writing techniques will be applied by the preparer and SOPs will be clear, concise, and specific. SOPs will be prepared in language understandable to personnel required to use them.

h. Specific operational, safety, and inspection requirements will be included at the step in the SOP to which they apply. General safety requirements that apply to more than one operation may be listed once at the forward portion of the SOP. If quality assurance (QA) provisions are provided in a separate SOP, the separate SOP will reference the operational SOP and vice versa. QA provision may be included in operational SOP, or in a separate SOP.

i. Hazard analyses are required to support the development of SOPs. Hazard analyses as described below will be performed for, and documents will be included with, all new and revised statements of work type documents, i.e., Depot Maintenance Work Requirements (DMWR), Maintenance Work Order (MWO), Letter of Instruction (LOI), and Special Surveillance Instruction (SSI). Hazard analyses are intended to provide users with identity of potential hazards, compensatory measures to control the identified hazards, and rationale to support decision points involving safety requirements. All statements of work documents will be revised to include hazard analyses when program requirements are generated for specific documents. This information will be used by the installation in assuring that analyses provided in the statement of work documents are tailored to reflect installation specific conditions.

(1) A hazard analysis will consist of a systematic and documented review of proposed procedures, facilities, and equipment to identify potential hazards that could result in injuries to personnel or damage to facilities or equipment. The level or depth of hazard analysis should be tailored to the complexity of the system, item, or process procedures involved.

(2) The form used to document this analytical effort must, as a minimum, require the listing of the following: A detailed step-by-step listing of the actions needed to accomplish the task; the listing of all tools and equipment used and the materials encountered in each step; the listing of all hazards, known or potential, associated with each step; a risk assessment code; and a complete listing of all corrective actions that will produce an acceptable risk and an explanation of how it will work if not self-evident.

(3) Development of the local hazard analysis is the responsibility of the installation commander. Personnel preparing hazard analyses will receive formal training and qualification in hazard analysis preparation. Training in hazard analysis techniques is available from the U.S. Army Defense Ammunition Center and School (USADACS) Savanna IL, 61074. Each Hazard Analysis will be approved by the installation safety office. Results of the hazard analyses will be incorporated into the SOP.

(4) A copy of the hazard analysis will be filed with a copy of the SOP in the office of record of the SOP (block 5 SOP cover sheet) in order to assure that it is available to support revisions to procedures or equipment and in development of analyses for similar items.

j. SOPs (not previously published) for any operation which poses potential personnel hazards or generates potential pollutants (as indicated by Hazard Analysis) will be validated at the installation prior to final SOP approval. The purpose of this validation is to verify that the instructions in the SOP are clear to the operators and that the execution of the steps in the SOP create no conditions that would constitute an unacceptable risk to the health or safety of personnel or to the environment. The introduction of these new SOPs should be divided into three phases:

Phase 1 - Conduct a simulated run using dummy/inert ammunition, if available, with appropriate witnessing officials (e.g., representatives from safety, ammunition planning, environmental, quality assurance, nuclear/chemical surety, operating supervisor, etc.) prior to final SOP approval. Pilot runs will be conducted for the purpose of evaluating and validating equipment, procedures and SOP instructions.

Phase 2 - Change SOP based on findings during phase 1 and obtain final local approval.

Phase 3 - Supervisors and operators of each shift will become familiar with the SOP and sign supervisor's/operator's statements when thoroughly familiar with SOP instructions. Initiate live operations for each shift under close supervision at a controlled production rate and build to the desired production rate.

k. It is mandatory that a checklist be prepared for review of SOPs prior to staffing. It should be developed through the combined efforts of all key organizations concerned with the preparation and approval of SOPs for the installation. A typical SOP checklist is listed at appendix M to assist in developing these checklists. Checklists for each SOP will be prepared, signed, and dated by the preparer of the SOP and will be filed and maintained in the office of record.

4. Responsibilities. a. The commanders of each AMC MSC and installation are responsible for implementing this regulation at installations and activities under their command.

b. Installation commanders are responsible for assuring SOPs are prepared for all operations under their jurisdiction as described in paragraph 3.

c. Each employee and supervisor will follow SOPs exactly as written and approved. No deviation from or alteration of the step-by-step procedures in the SOP will be allowed without formal staffing and approval per paragraph 5h.

d. The USADACS is responsible for conducting technical and safety reviews of SOPs. Appendix I of this regulation details specific review, digest, and index responsibilities.

5. Procedures. a. Prior to final approval at the installation, SOPs will be reviewed by and receive concurrence of the offices listed in paragraph 5b or offices that perform the equivalent functions under different organizational titles.

b. Each organization required to review an SOP will be allowed adequate time (not to exceed 5 workdays) for their review. The concurrence must be signed by the division/office chief or acting chief.

(1) Chief, Ammunition Directorate.

(2) Senior Quality Assurance Specialist (Ammunition Surveillance).

(3) Chief, Safety Office.

(4) Chief, Environmental Office (for compliance with all federal, state, local, and AMC environmental regulatory requirements).

(5) Nuclear Surety/Chemical Surety/Radiological Protection Officers (only those SOPs pertaining to their respective areas).

(6) If direct industrial hygiene support is available at an installation, the industrial hygiene representative will review and sign the SOP.

(7) If the SOP has first aid procedures, the local medical authority will review and sign the SOP.

(8) Member of the command group (Commander, Deputy Commander, or Executive Assistant) or other individual specifically authorized by the Commander to perform final review and approve SOPs.

(9) Concurrence of other organizations may be desired based upon local policy.

c. Following final approval at the installation, SOPs (including revisions and changes), will be submitted for review to the USADACS as follows: (except as noted in paragraph 3c and 3e).

(1) A summary sheet prepared per appendix J, will be forwarded with each SOP.

(2) Appropriate technical data as required by paragraph la, appendix I.

(3) SOPs should be submitted for external review at least 30 days prior to the start of operations.

NOTE: Approved SOPs may be implemented immediately by the commander or designated representative, for operations that must begin prior to USADACS review.

(4) Operational and RDT&E SOPs for chemical munitions, with or without explosives components, and bulk agents must be submitted for external review per appendix I of this regulation. Operations that are an integral part of chemical munitions operations, such as first entry monitoring of toxic chemical storage locations, and decontamination must also be submitted for external review. Excluded from the external review process are SOPs not directly related to chemical munitions such as testing the effects of toxic agents on protective clothing, calibration of laboratory detection equipment, operation of laundry facilities, and evaluating experimental screening material in a test chamber. Nuclear weapons SOPs are not to be submitted for information or review.

d. Operations that are similar can be covered by one SOP if the hazards inherent with each operation are specifically spelled out. Examples of such operations are shipping and receiving of ammunition, inspection of fixed ammunition, and preservation and packaging of like items.

e. Only similar items of ammunition having common hazards may be included in the same SOP.

f. Detailed step-by-step instructions necessary to perform the work required should be contained within the operations format of one SOP. If lengthy step-by-step procedures or diagrams are provided in other documents, the steps need only refer to the source by number, date, page, table, paragraph, change/revision (as applicable). If referred to, the source must be available at the operator's worksite. Typical source documents are noted below:

(1) Authenticated Army, Navy, or Air Force publications.

(2) Ammunition peculiar equipment (APE) operational manuals.

(3) Locally developed checksheets (with index of operations).

(4) Ammunition drawings.

(5) SOPs on routine operations, e.g., transport, spray painting.

g. Format.

(1) As a minimum each nonnuclear SOP will consist of the following items:

(a) Cover sheet (appendix A and figure A-1).

(b) Supervisor's statement (appendix A and figure A-2).

(c) Operator's statement (appendix A and figure A-3).

(d) Index of operations (appendix B and figure B-1).

(e) General safety requirements (appendix C). These requirements may be referenced in a separate general safety requirements SOP if the SOP is posted at each worksite with the operational SOP, if supervisors and operators sign their statements (appendix A, figures A-2 and A-3) and if the SOP receives annual review (paragraph 5h).

(f) Operations format (appendix D and figure D-1).

(g) Line layout (appendix E and figures E-1 and E-2), if applicable. Operations routinely conducted on the same outdoor site (e.g., open burning), should include a site plan (layout) in the SOP.

(2) As a minimum, each nuclear weapons SOP should consist of the following items:

(a) Cover sheet (appendix F).

(b) Supervisor's statement (same as nonnuclear).

(c) Operator's statement (same as nonnuclear).

(d) Index of operations (appendix G and figure G-1).

(e) Operations format (appendix H and figure H-1).

(f) Building floor plan. The floor plan must show installed equipment, dividing walls, etc. If more than one building is to be used, a separate floor plan must be prepared for each building.

(3) A single SOP will be prepared for each building or area in which operations on nuclear weapons and/or components are conducted. General SOPs (receipt, storage, issue, intradepot movement, painting, cleaning, etc., of nuclear weapons and/or explosive components) should be prepared in the format specified in (1) above. The building SOP will be used as a local reference document for planning and conducting maintenance operations. The general SOPs must be used to govern the specific area(s) covered.

(4) All pages will be numbered.

h. Reviews, changes, and revisions.

(1) Active SOPs will be reviewed for currency at least annually by the safety office and every 2 years by installation organizations reflected in blocks 5 and 11 of the cover sheet. Exception: Demilitarization/disposal SOPs will be reviewed annually. Inactive SOPs will be reviewed for currency prior to use. The review will be locally staffed and approved in the same manner as a new SOP (paragraph 5a). Review dates are computed from the most current date; i.e., basic, change, or revision.

(2) SOPs will be changed or revised per the following procedures whenever they are found to be deficient.

(a) A change to an SOP will consist of a page-for-page substitution (replacing only those pages with changes) with an authenticating cover sheet. Added pages may be designated with an alpha suffix; e.g., 7a, 7b.

(b) All changed portions of the test or contents will be indicated by vertical lines in the left margins or other highly visible approved method.

(c) Pages that have been changed will be annotated with the change number and date of the change.

(d) The old authenticating cover sheet should remain with the SOP, with the new cover sheet for the change attached over the old sheet.

(e) A total revision of an SOP will be made when more than one-third of the operational pages of the SOP require changes or have been changed. After a revision, numbering of future changes will begin again with change number 1. Previous authenticating cover sheet(s) need not remain with the SOP after a revision.

(f) All changes and revisions will be staffed and reviewed by USADACS.

6. References.

a. AMC-R 385-100, Safety Manual.

b. AMC-R 755-8, Authorizing, Accomplishing, and Reporting Demilitarization of Class V Materiel.

c. AMC Suppl 1 to AR 385-16, System Safety Engineering and Management.

d. AMC-R 385-131, Safety Regulations for Chemical Agents H, HD, HT, GB, VX.

e. AR 50-6, Nuclear and Chemical Weapons and Materiel Chemical Surety.

The proponent of this regulation is the United States Army Materiel Command. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the Commander, HQ AMC, ATTN: AMCAM-LP, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001.

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APPENDIX A

INSTRUCTIONS FOR PREPARATION OF SOP COVER SHEET, SUPERVISOR'S STATEMENT, AND OPERATOR'S STATEMENT (NONNUCLEAR)

1. The SOP cover sheet will be completed as illustrated in figure A-1. Information applicable to each numbered line not listed below is considered self-explanatory.

a. l--Installation. Insert the name of the installation.

b. 2--Item. Indicate the appropriate information as follows:

(1) Complete nomenclature. Standard Catalog Nomenclature should be used.

(2) Department of Defense Ammunition Code, (DODAC).

(3) Hazard Classification, packaged, and Fire Symbol.

(4) Hazard Classification, unpackaged, and Fire Symbol.

(5) Chemical Hazard Symbol(s).

NOTE: Complete block with "see appendix," "see index," or "not applicable," as required. For SOPs involving multiple items, it is permissible to refer to another section for information such as DODAC, nomenclature, NEW, fire symbol, etc.

c. 3--Operation. Indicate the type of activity, e.g., renovation, preservation and packaging, demilitarization, transportation, inspection, or test, as applicable. Operation should agree with SOP number code and operations listed in table L-2.

d. 4--Estimated Daily Production Rate. Enter number and units such as items, rounds, pounds, gallons, etc., if applicable.

e. 5--Organization Symbol. Insert the office symbol for the responsible organization (office of record).

f. 6--SOP No. and Date. (Date will be date of approval.) Numbering system should be consecutive, and arranged so as to avoid duplication of numbers by separate organizations of the same installation. The SOP number will be structured per appendix L.

g. 6a--Rev No. and Date. (Date will be date of approval.) Enter revision number when complete revision of the SOP is made; e.g., Rev 1.
h. 6b--Change No. and Date. (Date will be date of approval.) Insert the change number to either the basic or revised SOP, whichever is applicable.

i. 7--Authority. Indicate the appropriate technical reference, DMWR, test procedure, letter of instruction (LOI), supply bulletin (SB), technical order (TO), etc., which authorizes conduct of the operation. Date of reference, including changes, should be reflected.

j. 8-10--Prepared by, Reviewed by, Submitted by. Record name and title of individual responsible for these efforts, and include Defense Switched Network (DSN) number of preparer.

k. 11--Concurrences. Indicate office, title, name, signature, and date for those concurrences indicated in paragraph 5a. Where Government-owned, contractor-operated (GOCO) plants are concerned, appropriate members of both contracting officer's representative (COR) staff and contractor staff will be included in concurrence process and signatures will be required.

l. 12--Approval. Names of approving officials will be prepared per paragraphs 5a and 5b. Indicate office, title, name, signature, and date.

m. 13--Annual/Biennial Review. Add date and signature blocks for concurrence offices with title indicating review for adequacy per paragraph 5h. This review will be staffed in the same manner as the original review/approval procedure. A continuation sheet may be added for successive annual/biennial signature blocks.

INSTRUCTIONS FOR PREPARATION OF SUPERVISOR'S STATEMENT

2. The SOP supervisor's statement will be placed directly beneath the cover sheet and will have the format shown in figure A-2. Each supervisor using the SOP will be required to sign this statement.

INSTRUCTIONS FOR PREPARATION OF OPERATOR'S STATEMENT

3. The SOP operator's statement will be placed directly beneath the supervisor's statement and will have the format shown in figure A-3. Each operator will be required to sign this statement.

NOTE: One signed copy of the current SOP statements should be maintained.

FORMAT FOR SOP COVER SHEET

1. RED CREEK ARMY DEPOT

STANDING OPERATING PROCEDURE FOR:

2. ITEM: a. Ctg, 105MM, HE, M1, W/O Fuze.

b. 1315-C445.

c. Packaged (12)1.2, Fire Symbol 2.

d. Unpackaged 1.1, Fire Symbol 1.

e. Chemical Hazard Symbol - None.

3. OPERATION: Renovation

4. ESTIMATED DAILY PRODUCTION RATE: 800 rds

5. ORGANIZATION SYMBOL: SDSRC-Y

6. SOP No. RC-C445-B-001 DATE _____

a. Rev. No. _____ DATE _____

b. Change No. 3 DATE _____

7. Authority DMWR 9-1315-C445-R1 DATE _____

8. PREPARED BY _____ TITLE Equipment Specialist
JOHN A. JONES DSN/COM EXT 555-2461/(319)565-2461

9. REVIEWED BY _____ TITLE Chief, Maintenance Branch
ROBERT L. SMITH

10. SUBMITTED BY _____ TITLE Chief, Planning Branch
DAVID T. SOUTH

EXAMPLE

11. CONCURRENCES:

OFFICE	SIGNATURE/DATE	TITLE
DIRECTORATE FOR AMMO OPS	WILL R. FLATT	Director of Ammo Operations
SURVEILLANCE DIVISION	JOSEPH H. GUNN	Chief, Ammo Survl Division
ENVIRONMENTAL	JOHN C. BOGGS	Chief, Environmental Office
SAFETY	JAMES T. ROSY	Chief, Safety Office

12. APPROVAL _____ _____
JOHN O. LITTLE DATE
COL, OD
Commanding

Figure A-1. SOP cover sheet

13. ANNUAL/BIENNIAL REVIEW:
(Choose applicable review interval)

DATE	SIGNATURE	TITLE
_____	_____	(Originator)
_____	_____	Chief, Ammunition Surveillance Division
_____	_____	Director of Ammunition Operations
_____	_____	Chief, Environmental Office
_____	_____	Chief, Safety Office

APPROVAL _____ _____
Commanding DATE

Figure A-1. SOP cover sheet -- (continued)

FORMAT FOR SUPERVISOR'S STATEMENT

SOP No. _____ REV. No. ____ CHANGE No. _____ DATE _____

1. The Supervisor will sign this statement:

a. When first assigned as supervisor of the operation.

b. When an approved change is made to the SOP.

c. At least once per quarter during continuing operations.

d. After absence from the job in excess of 15 consecutive workdays.

2. I have personally reviewed each of the operational steps of the SOP and have no question in my mind that the operation can be performed safely, efficiently, and in compliance with environmental restrictions noted in the SOP. I have verified to my satisfaction that operators have been trained and are capable of performing their part of the operation in a safe and efficient manner, and have instructed them to follow the SOP without deviation.

SAMPLE

SUPERVISOR'S PRINTED/TYPED NAME: _____

SUPERVISOR'S SIGNATURE	DATE
_____	_____
_____	_____
_____	_____
_____	_____

Figure A-2. Format for supervisor's statement

FORMAT FOR OPERATOR'S STATEMENT

SOP No. _____ REV. No. _____ CHANGE No. _____ DATE _____

1. The operator will sign this statement:

   a. When first assigned to the operation.

   b. When an approved change is made to the SOP.

   c. At least once per quarter during continuing operations.

   d. After absence from the job in excess of 15 consecutive workdays.

2. I have read, or have had read to me, and understand the general and specific safety and environmental requirements, the personnel and explosive limits, and the work description and inspection requirements necessary to accomplish my operation. I have been thoroughly trained in, and am familiar with, my part of the operation and I agree to abide by these instructions throughout my assignment to the operation.

NAME/SIGNATURE	DATE	OPERATION NUMBER

Figure A-3. Format for operator's statement

APPENDIX B

INSTRUCTIONS FOR PREPARATION OF INDEX OF OPERATIONS (NONNUCLEAR)

The index of operations will be completed as illustrated in figure B-1.

a. Column 1. Indicate the operation number.

b. Column 2. Identify the building or site where the operation is being conducted.

c. Column 3. Insert the bay/room number to show the exact location of operation. Bay numbers will coincide with line layout drawings submitted. Enter not applicable (N/A) for locations without separate bays/rooms.

d. Column 4. Indicate the total explosive limits for individual bays listed in Column 3. For locations without individual bays/rooms that conduct more than one operation, operational limits will be established for each location. Small caliber ammunition (hazard class/division 1.4) and chemical ammunition without bursters may be listed by number of rounds. Explosive limits in a bay will include all items in transit; i.e., on conveyors, skids, or trays. Assure explosive limits comply with paragraphs 16-1a, 16-lb, and 16-2 of AMC-R 385-100.

e. Column 5. Insert a description of the operations; e.g., unpack, disassembly, etc.

f. Column 6. Page number.

g. Remarks. Insert a brief description of the work to be performed. List waivers, exemptions, specific authorizations, or approved deviations which apply to this operation. Insert the reason for a change or revision. If an SOP supersedes an SOP of another number, a statement of supersession should be made. List references used to prepare the SOP and required to conduct the operation (in addition to any listed on line 7 of cover sheet). Pages/operations which are changed (excluding revisions) will be listed in the remarks.

SOP NO. RC-C445-B-001 REV _____ CHG 3 DATE _____

INDEX OF OPERATIONS

OPER. NO.	BLDG NO. OR SITE	BAY NO.	TOTAL EXPLOSIVES ALLOWED	DESCRIPTION OF OPERATION	PAGE NO.
1	4650	1	425 lb.	Unpack	4
2	4650	2	200 lb.	Disassembly	5
3	4650	3	200 lb.	Cleaning	6
4	4650	4	200 lb.	Painting	7
5	4650	5	200 lb.	Reassembly	8
6	4650	6	425 lb.	Repack	9

REMARKS:

1. Operation consists of unpacking, disassembly, and performing maintenance on item and packing material as required.

2. Exemption E-16-64 is in effect as pertains to the location of Bldg 4650 to guard shelter.

3. Operation No. 6, Change 1: To provide for receipt of boxes from Operation No. 1.

4. Operations No. 3 and 4, Change 2: To add operation to clean and point projectiles.

5. Operation No. 2, Change 3: To provide for inspection of propelling charge.

6. References: AMC-R 385-100
TM 43-0001-28
SB 742-1
DOD Ammo Catalogs 1-2-3
DARCOM-P 700-3-3
TM 9-1300-251-20
Joint Hazard Classification System
TM 9-1300-251-34
AMC-R 700-107

_____
This SOP supersedes SSMRC-23, 26 June 1964

Figure B-1. Index of operations

APPENDIX C

EXAMPLES OF GENERAL SAFETY REQUIREMENTS

NOTE: Following listing should only be used as a guide in preparing general safety requirements. Instructions should be added or deleted so as to be directly applicable to the operations covered by the SOP.

1. Standing operating procedure (SOP), applicable portion, will be conspicuously posted in rooms or bays involved in the operation. Supervisory personnel shall maintain copies of a complete SOP and be responsible for the enforcement of its provisions.

2. There will be no deviation or change from the approved SOP.

3. Care will be taken to expose a minimum number of personnel, for a minimum time, to a minimum amount of hazardous materiel consistent with safe and efficient operations.

4. Specific procedures to be taken in the event of an electrical storm will be outlined based on each individual location covered in the SOP. Another locally approved SOP may contain this information.

5. The supervisor is responsible to report all injuries and accidents occurring during his/her shift to the safety office.

6. In the event of a fire or explosion, activate all installed fire extinguishing equipment and alarm systems. The person discovering the fire/explosion will notify the Fire Department, Safety Officer, Chief of Surveillance, and Chief of Ammunition.

7. Employees will not tamper with any safety devices or protective equipment. Safety equipment will not be modified without local safety office approval.

8. Operators will have an unobstructed path of travel to the nearest available exit.

9. All handtools will be maintained in good repair.

10. Personnel near steel banding operations will wear face shields and safety eyewear. Operators handling metal banding will also wear leather, or leather-palmed, gloves.

11. Work tables will be equipped with side boards to prevent ammunition from rolling off. Metal table tops will be grounded.

12. Paint thinners, oily rags, and other highly flammable materiels will be kept in approved, marked, closed receptacles.

13. Equipment and the grounding system will be tested for electrical resistance and continuity when initially installed, and at intervals determined per chapter 7, AMC-R 385-100. All exposed explosives or hazardous materials will be removed prior to making the test. Test results will be recorded.

14. Operators lifting material will use proper, safe hand holds, assume proper lifting position, avoid twisting when lifting or carrying, and avoid sharp objects.

15. Explosives-loaded ammunition, packaged ammunition, or bulk explosives will not be handled roughly, thrown about, tumbled, dropped, or walked over other explosives or ammunition. Large ammunition items packaged in DOT approved containers designed to permit dragging, rolling, or towing may be so moved when necessary during handling for storage and transportation.

16. Leather, or leather-palmed, gloves will be worn when handling wooden boxes.

17. Steel-toed safety shoes will be worn by all personnel engaged in material handling operations.

18. All employees handling or storing material treated with Pentachlorophenol (PENTA) should be aware of the following guidance:

a. The degree of hazard associated with PENTA treated packing materials cannot be determined by visual examination. There are no quantifiable criteria to use in judging such items as "loose" or "excessive", therefore the following information is disseminated to provide final guidance on protective measures for handling PENTA treated wood. This guidance should be followed under the direction of a resident industrial hygienist who has evaluated the actual PENTA exposure in question.

b. The following protective measures are recommended for handling PENTA-treated lumber:

(1) Prevent inhalation, ingestion, skin and eye contact.

(2) Good housekeeping is essential to prevent reentrainment of PENTA crystals or wood dust.

(3) Prevention of skin and eye contact through the use of gloves, coveralls, and goggles. The type of gloves to be worn is dependent upon the characteristics of the wood being handled. If the wood is wet or tacky, gloves made of nitrile rubber or polyvinyl chloride (PVC) should be worn. Leather-palmed gloves offer proper skin protection when handling properly treated wood. Perspiration build-up

may allow PENTA to permeate through leather gloves; therefore, only dry leather-palmed gloves should be worn, coveralls which are laundered on a routine basis (preferably daily) should be worn. The coveralls should not be taken home, but should remain at the work site. When handling wood with visible crystals of PENTA or when generating wood dust, chemical goggles should be worn.

(4) See U.S. AEHA Technical Guide No. 146 for complete handling and disposal instructions.

(5) No smoking, eating, or drinking should be permitted in the work areas. Separate break areas and washing facilities should be provided. Personnel should wash hands prior to eating, drinking, smoking, or using toilet facilities. All exposed areas of the body should be washed at the end of each workday.

c. Local industrial safety (hygienist) will determine TLV of suspect operations, to determine protective equipment requirements.

19. Guidance on handling lumber treated with zinc naphthenate and copper naphthenate - prevent inhalation, ingestion, and skin contact.

a. Good housekeeping - see 18b(2).

b. Personnel should wash hands before eating, drinking, smoking, and using toilet facilities. All exposed areas of the body should be washed at the end of each workday.

c. Leather-palmed gloves should offer proper skin protection. If skin irritation is noted, a vinyl-coated glove can then be substituted. Coveralls may be required if irritation is noted for other areas of the body.

d. A NIOSH-approved dust mask should be worn when sawing and machining treated wood.

20. Appropriate fire symbols and/or chemical hazard symbols will be displayed on vehicles used to transport ammunition on the installation. Operational buildings will also display the appropriate symbol(s) in such a manner as to be easily visible from all roads of approach. Remove/cover fire symbols when last explosive item is removed from location or transport vehicle.

21. Each MHE/vehicle operator will have in his possession a valid operators permit for the particular piece of equipment to be operated.

22. Material handling equipment and other lifting devices will have the load rating and date of next inspection marked on them. The load rating will not be exceeded and the equipment will not be used without a current inspection date.

23. Types E, EE, ES, and EX rated battery-powered equipment are satisfactory for handling all classes of ammunition and explosives packed per Department of Transportation Regulations.

24. Any defect or unusual condition noted that is not covered by this SOP will be reported immediately to supervisory/Quality Assurance Specialist (Ammunition Surveillance) QASAS personnel.

25. Any ammunition determined to be dangerous to handle or store will be reported immediately to supervisory personnel. Operations will be suspended and if warranted, personnel will be evacuated pending further instructions.

26. Posted personnel and explosives limits must not be exceeded at any time. Transient personnel must comply with the same safety requirements as operating personnel.

27. No more than a 4-hour requirement of supplies should be kept in an operating building.

APPENDIX D

INSTRUCTIONS FOR PREPARATION OF OPERATIONS FORMAT (NONNUCLEAR)

The illustration of operations formats, figure D-1, is not intended to cover all situations; and the reflected information does not necessarily have complete or accurate steps. The illustration has been provided solely for the purpose of adding clarification to the written instructions below, applicable to lines A through L, figure D-1. The two column format illustrated at figure D-1 is preferred but is not required. When local conditions warrant, a single column format (i.e., each step or specific instruction written across the width of the page) is acceptable. Numbering of all steps, complete description of operations, and specific instructions as described in paragraph f below, are required regardless of format used. Single and two column format may not be used in the same SOP.

a. A--Standing Operating Procedures For: Indicate the operation and nomenclature of the item being worked; e.g., "Preservation and Packaging of 155-MM HE M107."

b. C--Location/Bay No.: Show site, building, bay, room, or cubicle number (as applicable).

c. Operation: Indicate the title of the operation; e.g., pull apart complete round, defuze, assemble cartridge case to the projectile, etc.

d. H--Explosive Limits- Indicate the number of units and pounds that have been determined to be necessary, consistent with safe and efficient operation. Where complete items are in the same bay/ operation, list the quantity and explosive weight limits for each. Separate components should also be identified by quantity and total explosive weight.

e. Personnel Limits: When used in conjunction with establishing personnel limits, an operator is defined as any individual who is present at a work station permanently or intermittently and performs work in the bay (e.g., inspector, operator, leader). A transient does not perform work in the bay.

NOTE. Operators as listed on Personnel Limit signs bear no relationship to the total manpower requirements for the job, but are only an indication of the maximum number of personnel which are permitted to be exposed to a particular hazard.

f. J--Step No., Description of Operation, and Specific Instructions.

(1) The procedural details of work to be performed will be listed under "Description" of operation in a numbered and logical sequence. Description must be sufficient to allow the operator to accomplish the task in a safe and technically correct manner (see figure D-1).

(2) "Specific Instructions": These are intended to furnish information that applies to one specific step of the operation and which has not been included in the actual description of physical work performed. Items to be listed here include quality characteristics, specific safety equipment or clothing required, specific safety precautions to be taken, and technical instructions necessary for task accomplishment. (Refer to figure D-1 for illustrations, examples, and explanations.) All specific instructions will be identified to indicate the step referred to and the type of instruction; Safety (S); Operational (O); and Quality Checks (QC); or any combination of the above. When more than one specific instruction is listed for a step, subletter the paragraphs as noted in figure D-1, step 3.

g. K--Special Requirements. This space will include instructions which are required and apply to the entire operation or bay, and would not be listed in line J. Instructions may concern safety, technical aspects of the operation, defect standards, or equipment inspection requirements (see illustrations, figure D-1). Items covered under line J of the SOP need not be duplicated under line K. Surveillance/quality control inspection requirements may be listed under Special Requirements for each operation, or included as a separate operational page covering the surveillance and/or quality control inspections.

h. L--Equipment, tools, gages, and supplies. This space will include all materials, equipment (standard APE, locally fabricated equipment, and nonstandard APE), specific handtools that are unique to operation, specific safety equipment or other items required to support operation. It is not necessary to list those tools that are commonly used in most operations, e.g., banding cutters, hammers, screwdrivers, (unless they must be sparkproof), etc. Specific nomenclature including item description, national stock number and/or specification number will be used to adequately identify listed equipment, tools, gages, and supplies.

i. Continuation sheets need only list operation number, SOP number, change, revision, and applicable date, at a minimum.

OPERATIONS FORMAT

A. STANDING OPERATING PROCEDURE FOR: B. OPERATION NO. 3

P&P of 155-MM HE M107 C. SITE/BUILDING/BAY NO./ G

D. SOP NO. RC-D544-E-002 DATE

E. REV. NO. 1 DATE

F. CHANGE NO. 1 DATE

G. OPERATORS: PAINT PROJECTILE

H. EXPLOSIVE LIMITS: UNITS: 10 EXPLOSIVE LBS: 150

I. PERSONNEL LIMITS: OPERATORS 2 TRANSIENTS: 1

J. Step No.	Description	Specific Instructions (Safety, Operational, Quality Checks)
1.	Receive projectiles by power monorail from Operation No. 2.	
2.	Activate paint spray booth.	2. (S) Ensure that filters are clean and exhaust fan in paint spray booth is operating properly prior to start of operation.
3.	Spray paint cleaned projectile.	3a. (O) Rotating band cover must be present prior to painting. 3b. (O) A primer coat of MIL-P-11414D will be sprayed on to cover bare metal exposed on projectile. 3c. (O) Spray paint exterior surface of projectile with olive drab TT E-516, color no. 34088 using finish No. 20-1 of MIL-STD-171D.

Figure D-1. Operations format

OPER NO. 3 SOP NO RC-D544-E-002 REV 1 CHG 1 DATE_____

3d. (QC) Inspect workmanship (DS-3) and paint coverage (DS-4).

4. Projectiles will continue on monorail to Operation No. 4.

K. SPECIAL REQUIREMENTS:

1. DS-3: Projectile free of dirt, chips, grease, rust, and other foreign material. Visual-minor, AQL 0.65.

DS-4: Primer and paint coverage is complete. Visual-minor, AQL 0.65.

2. Surveillance will perform required grounding/continuity test.

3. Maintenance personnel will perform required inspection and preventive maintenance on installed equipment. (This type of statement would only be required in the special requirements for the first operation where monorail is used.)

L. EQUIPMENT, TOOLS, GAGES, AND SUPPLIES:

ITEM	QTY RQRD	SPEC NO. OR DWG. NO.	MGMT CONTROL STOCK NUMBER (MCSN) OR NSN
1. Paint, OD enamel	as reqd	TT-E-516	8010-00-297-2216
2. Paint spray equipment	1 each		APE 1045
3. Conveyor, monorail	1 each		APE 1044
4. Paint system, hot spray, portable	1 each		Commercial
5. Respirator, paint spray	1 each	GGG-M-125/6A	4240-01-211-3592
6. Primer, coating, lacquer, rust inhibiting	as reqd	MIL-P-11414	8010-00-597-7854

Figure D-1. Operations format (continued)

APPENDIX E

INSTRUCTIONS FOR PREPARATION OF LINE LAYOUTS (NONNUCLEAR)

A clear legible line layout must accompany each SOP conducted inside buildings. The following instructions apply:

a. Line layouts will be prepared in the format shown in figure E-1. A layout should show the structural material of the building, fire protection, location of dividing walls, operational shields, and permanently installed equipment. Operational shields must be detailed to show the type of material used, height, and thickness. Permanently installed equipment must be listed whether or not it is used on the specific operation. Each bay or room must be identified by a numeral or letter. A directional symbol must be used to indicate true north. The building number and the applicable SOP number must also be shown.

b. The operational sequence must be depicted by the use of standardized symbols as illustrated in figure E-2. The location of pallets, tables, APE, etc., must be shown where they will be used. A legend must be used to briefly explain the operations, inspections, and location of pallets, tables, APE, etc. Assign operation numbers to agree with those in the index of operations and operations format.

APPENDIX F

INSTRUCTIONS FOR PREPARATION OF COVER SHEET (NUCLEAR WEAPONS)

The SOP cover sheet will be completed as illustrated in figure A-1, except that the building covered will be entered in item 2. Items 3 and 7 will be left blank. The Nuclear Surety Officer will be included in item 11, and the Director for-Special Weapons will review vice the Director of Ammunition Operations.

APPENDIX G

INSTRUCTIONS FOR PREPARATION OF INDEX OF OPERATIONS (NUCLEAR WEAPONS)

The index of operations will be completed as illustrated in figure G-1.

a. Column 1. Indicate the operation number.

b. Column 2. Identify the building or site where the operation is being conducted.

c. Column 3. Enter bay number.

d. Column 4. Indicate number of units and total explosive units for each worksite in the bay.

e. Column 5. List the system only.

f. Column 6. Insert page number.

INDEX OF OPERATIONS

SOP NO. RC-0000-R-301 DATE _____
REV NO. _____ DATE _____
CHG NO. _____ DATE _____

OPER NO.	BLDG NO. OR SITE	BAY NO.	TOTAL EXPL. ALLOWED IN BAY (REF COL 3)**	DESCRIPTION OF OPERATION	PAGE NO.
N/A	353	N/A	500 lbs/15 kg	General Rqmnts	
1	353	1	10/15	8"	
2	353	2	356/1	PERSHING	

**In the first line (general requirements) enter the total building limits. In the following lines (weapons systems) enter the worksite explosive limits/number of units. A worksite is the area occupied by a crew while performing a specific task.

Figure G-1. Index of operations (nuclear)

APPENDIX H

INSTRUCTIONS FOR THE PREPARATION OF NUCLEAR WEAPONS SYSTEM OPERATIONS FORMAT

An operations format page will be included for each weapons system to be worked in the building. The operations format (see figure H-1) will be completed as follows:

a. A--Enter applicable weapons system nomenclature.

b. B--Enter operations number in sequence by SOP page.

c. C--Enter the worksite number(s) per building layout in which the operation may be conducted. A worksite is the area occupied by a crew while performing a specific operation.

d. D--Enter SOP number.

e. E--Self explanatory.

f. F--Self explanatory.

g. G--Enter operations covered; if all, so state.

h. H--Enter the permissible number of warheads. If the system does not use warheads, enter permissible number of explosives bearing units. If the system does use a warhead but specific operations do not require the warhead but require other explosive bearing units (e.g. Nike Hercules adaption kit), the number of permitted units will be covered in the specific safety information followed by total quantity of explosives permitted at the worksite.

i. I--Enter the total number of operators and transients permitted at the worksite.

j. J--Complete the three columns as follows:

(1) Type of Operation. Enter operations title per technical manual for each operation to be performed.

(2) Technical Manual, Section Number. Enter the technical manual number and section number containing procedures for the conduct of the technical operation.

(3) Checksheet. Enter the local checksheet number containing the step-by-step procedures for the conduct of the specific operations. If because of the volume of work or other reasons the particular manual checksheets are not prepared for specific types of operations, these operations will be conducted using the technical manual. This will be so indicated in the SOP and be carefully considered by all personnel reviewing and concurring in the SOP.

k. K--Enter specific safety instructions peculiar to the specific weapons systems.

OPERATIONS FORMAT

A. STANDING OPERATING PROCEDURE FOR: Projectile 8"

B. OPERATION NO. _____

C. BAY NO. _____

D. SOP NO. _____

E. REV. NO. _____

F. CHANGE NO. _____

G. OPERATION: All Types

H. EXPLOSIVE LIMITS: UNITS: 15 EXPLOSIVE LBS: 10

I. PERSONNEL LIMITS: OPERATORS: 8 TRANSIENTS: 5

J.

Type of Operation	Technical Manual, Section No.	Checksheet
Periodic Inspection	TM 9-1100-218-45/1, 3-4	218-1 & 2
Initial Receipt Insp	TM 9-1100-218-45/1, 3-2	218-1 & 2
Receipt Inspection	TM 9-1100-218-12, 4-2	218-3
Pre-Issue Inspection	TM 9-1100-218-12, 4-3	218-4
Maintenance	TM 9-1100-218-45/1, 5	218-5
	TM 9-1100-218-12, 11	N/A
Modification	MWO 9-1100-218-20/1	N/A
	MWO 9-1100-218-20/2	N/A
	MWO 9-1100-218-40/2	N/A
Inspection & Maintenance of XM83 & XM84 Locking Devices	TB 9-1100-218-15/1	218-6

Figure H-1. Operations format (nuclear)

K. SPECIFIC SAFETY PRECAUTIONS:

a. Beryllium dust is toxic when inhaled or ingested and presents an extreme health hazard. Whenever beryllium dust is present, gloves or other protective clothing, and appropriate respirators must be worn. Never abrade components or items composed of beryllium.

b. Remove and destroy any loose explosive per procedures in AMC-R 385-100.

Figure H-1. Operations format (nuclear)--(continued)

APPENDIX I

PROCEDURES FOR REVIEW OF SOPS BY THE U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL (USADACS)

1. Installation Level.

a. The SOP will be staffed and approved within the installation (in accordance with paragraph 5a) in order to produce the most accurate and complete procedures possible. Appropriate technical data (e.g., scope of work, drawings, LOIs, work orders, waivers, exemptions) containing special instruction issued by commands, and local hazard analyses will be forwarded with the SOP. DMWRS, TMs, TOs, and SBs used to prepare the SOP need not be forwarded. The SOP will be forwarded to the USADACS for technical review. Changes or revisions will likewise be forwarded to USADACS.

One copy to: Director U.S. Army Defense Ammunition Center and School
ATTN: SMCAC-AV
Savanna, IL 61074-9639

b. Changes recommended by USADACS will be incorporated into the SOP by the preparing installation where regulatory violations are cited. Comments or suggested changes to improve operational efficiency will be incorporated at the discretion of the Commanding Officer.

2. Safety Review.

a. All SOPs submitted by installations will be screened and a 100 percent safety review will be performed. Comments and recommendations will be forwarded to the installation commander, with copies furnished to the preparing office, local safety office, and appropriate MSC safety office.

b. A repository of approved SOPs will be maintained at USADACS for utilization in the development of safety training and education programs, for reference in connection with reviews of facility safety site plans and safety submissions, and for reference use in the preparation for on-site safety evaluations.

3. Technical Review.

a. SOPs submitted by installation will be reviewed for compliance with standards, approved practices, and regulatory guidance in the following areas:

(1) Methodology and productivity.

(2) Equipment.

(3) Quality assurance checks and Ammunition Surveillance Inspection Plans.

(4) Storage.

(5) Transportation.

(6) Security.

(7) Environmental requirements.

b. Comments and recommendations for change will be transmitted by USADACS to the installation commander with copies furnished to the preparing office (or routed as requested by installation), FSA, and appropriate MSC office.

c. A central source of ammunition operational expertise, criteria, and performance capabilities for the ammunition system will be established and maintained by USADACS. A repository for SOPs and technical data will likewise be established.

4. Additional USADACS Responsibilities.

a. An immediate notification of critical deficiencies in SOPs will be made to installations at the time the SOP is reviewed.

b. Comments generated during the SOP review regarding the adequacy of technical references will be forwarded to the proponent and/or the SOP preparer for corrective action.

c. Evaluate significant trends and actions taken as a result of the review program for compilation into an SOP Digest.

d. Annually prepare and distribute the SOP Digest to ammunition installations and MSCs.

e. Annually publish and distribute the Index of SOPs for AMC Installations to ammunition installations and MSCs.

APPENDIX J

INSTRUCTIONS FOR PREPARATION OF THE SUMMARY SHEET

1. The format for a summary sheet for submittal of SOPs is shown in figure J-1. This information is required for each SOP, change or revision.

2. Instructions:

   a. Item 1 - Fill in as required.

   b. Items 2 through 4 - Check one block each.

   c. Item 5 - Check one block and fill in dates as applicable.

   d. Item 6 - Check/fill in as required.

   e. Item 7 - Check block or blocks as required.

STANDING OPERATING PROCEDURE
SUBMITTAL SUMMARY SHEET

1. Installation:_____ Date Submitted:_____

SOP NO._____

2. Reason for Submittal:

_____New

_____Revision

_____Change

3. Procedures Involve Material That Is:

Explosive_____ Radioactive_____
Chemical Surety Material _____
Other (Specify) _____

4. Type SOP:

___Maintenance (Renovation, Modification)
___Preservation and Packaging
___Demilitarization
___Receipt, Storage, Transportation, and Issue
___Inspection/Surveillance/Test
___Other

5. Operation Covered by SOP:

___Operation is Underway and Will Conclude_____.
___Operation is Scheduled to Start on or About_____and Conclude_____.
___Operation is Conducted Intermittently.
___Operation is Conducted on a Continuing Basis.

6. Hazard Analyses

___Is Required for Critical Operation Number/s_____.
___Is Attached as an Enclosure.
___Is not Attached. Provide Reason:_____.
___Hazard Analyses were Performed by:_____ DSN_____.

7. SOP Validation

Phase 1 was Accomplished____ Was not Accomplished____
Phase 2 was Accomplished____ Was not Accomplished____
Phase 3 was Accomplished____ Was not Accomplished____

Validation Not Required_____

Figure J-1. Summary sheet format

APPENDIX K

PRIORITY FOR PERFORMING SOP REVIEWS

Priorities for the review of SOPs by USADACS will be based upon the type of operation and timeframes reflected in the following table.

OPERATIONAL REVIEW PRIORITY	APPLICABLE OPERATION	REVIEW TIME FRAME *
1	Demilitarization	15 days
2	Renovation/Modification/ Conversion	25 days
3	Testing	30 days
4	Preservation & Packaging	45 days
5	Other	45 days

*From date of receipt at USADACS.

APPENDIX L

STANDARDIZED SOP NUMBERING SYSTEM

In order to maintain an automated index of SOPs, a four-part numbering system has been established. The four parts are separated by hyphens, e.g., AN-G881-B-005.

a. Installation code. A two-letter code identifies the installation (table L-1).

b. Department of Defense Identification Code (DODIC). List the DODIC of the item to which the SOP applies. When multiple DODICs of the same letter are included (G880-G881, G882), the letter will be followed by three zeros (G000). When DODICs of more than one letter are included (G881, D544, H841), the operation involves ammunition or explosives in general, or a DODIC is not assigned to the item, four zeros will be entered (0000).

c. Operation code. A one-letter operation code indicates the type of operation (appropriate section of table L-2).

d. Sequence number. Conventional Ammunition Operations will utilize numbers 001-300 and Quality Assurance will use 301-500. Additional numbers may be used if required to meet mission needs. Each SOP at a single installation must have a different sequence number.

INSTALLATION CODES

TABLE L-1

AC - USADACS

AN - Anniston

AP - Aberdeen

AR - ARDEC

BJ - Badger

CN - Crane

CR - CRDEC

CS - Combat Systems Test Activity

DP - Dugway

FW - Ft. Wingate

HL - Holston

HW - Hawthorne

IN - Indiana

IO - Iowa

JA - Joilet

JP - Jefferson

KN - Kansas

LB - Lexington-Blue Grass

LC - Lake City

LE - Letterkenny

LP - Louisiana

LS - Lone Star

LW - Longhorn

MA - Milan

MC - McAlester

MS - Mississippi

NA - Navajo

NP - Newport

PB - Pine Bluff

PU - Pueblo

RA - Redstone Arsenal Spt Activity

RD - Radford

RR - Red River

RT - Redstone Tech Test Center

RV - Revenna

SE - Seneca

SI - Sierra

SV - Savanna

SW - Sunflower

TA - Tank and Automotive Command

TE - Tooele

TU - Tech Escort Unit

UM - Umatilla

VL - Volunteer

WS - White Sands

YP - Yuma

TYPE OPERATION CODES

TABLE L-2

Ammunition Operating Element	Quality Assurance Element
A - Administrative	Q - Administrative
B - Renovation	R - Visual Inspection and Test
C - Modification	S - Function & Trace Test
D - Conversion	T - Safety & logistics Inspections
E - Preservation & Packaging	U - Maintenance Inspection Operations
F - Nondestructive Testing	V - Demil Inspection Operations
G - Demil -- Detonation	W - General
H - Demil -- Burning	
I - Demil -- Washout (Steamout)	
J - Demil -- Disassembly	
K - Demil -- Other (Including Furnace)	
L - Shipping, Receiving, Transport, and Rewarehousing	
M - General	
N - Explosive Loading/LAP/ Manufacturing	
P - Research/Development Testing	

APPENDIX M

TYPICAL SOP CHECKLIST

SOP TITLE:		
SOP NO: DATE:		
REVISION NO: DATE: CHANGE NO: DATE:		
	YES	NO
1. SUMMARY SHEET		
a. Hazard analysis	_____	_____
b. SOP validation	_____	_____
2. COVER SHEET		
Completed items 1 through 7	_____	_____
3. STATEMENTS		
a. Supervisor's	_____	_____
b. Operator's	_____	_____
4. INDEX OF OPERATIONS		
a. Listing by operation number	_____	_____
b. Description of operation	_____	_____
c. Applicable waiver of authorization	_____	_____
d. Reason for change or revision	_____	_____
e. References	_____	_____
5. EXPLOSIVE LIMITS		
a. Proper weight limits (bays & bldgs)	_____	_____
b. 4-hour supply of hazardous material	_____	_____
c. Personnel limits	_____	_____
6. EQUIPMENT		
a. Remote operation	_____	_____
b. Guards	_____	_____
c. Approved operator adjustments	_____	_____
d. Grounding and bonding	_____	_____
e. Approved APE	_____	_____

7. FACILITY		
a. Deluge system/sprinkler system	_____	_____
b. Conductive flooring	_____	_____
c. Approved electrical fixtures	_____	_____
d. Lightning protection	_____	_____
e. Ventilation (paintbooths)	_____	_____
8. PROTECTIVE CLOTHING		
a. Coveralls	_____	_____
b. Eye protection/face shield	_____	_____
c. Hearing protection	_____	_____
d. Respiratory protection	_____	_____
e. Conductive shoes	_____	_____
f. Special clothing	_____	_____
9. TOOLS		
a. Approved	_____	_____
b. Nonsparking	_____	_____
10. PROCESS		
a. Barricades	_____	_____
b. Grounding and bonding	_____	_____
c. Remote operations	_____	_____
d. Approved conveyor spacing	_____	_____
e. Proper sequence of operations	_____	_____
f. Exposure to concurrent operations	_____	_____
11. MATERIAL HANDLING		
a. Material handling equipment (MHE)	_____	_____
b. Special requirements	_____	_____
12. DISPOSAL		
a. Demolition ground restrictions	_____	_____
b. Misfire procedures	_____	_____
c. Burning ground per AMC-R 385-100	_____	_____
d. Burning operations observed continuously	_____	_____
13. LINE LAYOUT		
a. Emergency exits	_____	_____
b. Diagram matches written description	_____	_____

14. OTHER REQUIREMENTS

a. Training/certification	_____	_____
b. Medical clearance	_____	_____
c. Physical requirements	_____	_____
d. Industrial hygiene	_____	_____
e. Decontamination	_____	_____
f. Radiological hazards	_____	_____
g. Emergency procedures	_____	_____
h. PCP/CopperNaphthanate precautions	_____	_____
i. Fire fighting equipment	_____	_____
j. Weather restrictions	_____	_____
k. Hazardous chemicals	_____	_____
l. Electromagnetic radiation	_____	_____
m. Environmental	_____	_____
n. Procedures in event of electrical storm	_____	_____
o. General safety requirements	_____	_____